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10/651,681	08/29/2003	Yuichiro Nagashima	16869S-093400US	9208

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EXAMINER	
DARE, RYAN A	

ART UNIT	PAPER NUMBER
2186	

DATE MAILED: 08/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/651,681	NAGASHIMA ET AL.	
	Examiner	Art Unit	
	Ryan Dare	2186	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *6/1/2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8 and 10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8 and 10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *1/2/2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *08/29/03, 06/22/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-8 and 10 have been examined.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 112.

3. The drawings are objected to because in fig. 4, block S413, the word "change" is misspelled.

4. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

5. The disclosure is objected to because of the following informalities. Appropriate correction is required.

6. Page 13, line 6 recites the term "RAID". It is the duty of Applicant to introduce this term, as on page 14, lines 11-12.

7. Page 17, lines 3 and 4 introduce the abbreviation for nonvolatile ram as NVRAM. It is the duty of Applicant to ensure this abbreviation remains consistent, specifically on page 17, line 25 and page 21, line 7, where the abbreviation "NVRAN" is used.

8. Page 24, line 7 recites the term "GUI". It is the duty of Applicant to introduce this term.

Claim Rejections - 35 USC § 112

9. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

10. Claims 4 and 6 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter that was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claims 1 and 5 disclose a first process in which data is mirrored between two logical volumes. Claims 4 and 6 describe performing the first process without having a second logical volume mounted. According to fig. 4, reference numeral S409, when the

decision to not mount the second logical volume is made, the process is ended. Further, the specification does not describe how a process that mirrors data to two logical volumes can be performed on one logical volume. Since claims 4 and 6 do not enable one of ordinary skill in the art to understand the invention, no prior art rejection is made at this time for claims 4 and 6. It is the duty of Applicant to enable these claims, so the Examiner may evaluate them on their merits.

11. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

12. Claims 1, 2, 3, 5, 7 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

13. Claim 1 recites the limitation "the data" in lines 7 and 8. There is insufficient antecedent basis for this limitation in the claim.

14. Claim 2 recites the limitation "the data" twice in line 7. There is insufficient antecedent basis for this limitation in the claim.

15. Claim 3 recites the limitation "the data" in lines 7 and 8. There is insufficient antecedent basis for this limitation in the claim.

16. Claim 5 recites the limitation "the data" in lines 7-9. There is insufficient antecedent basis for this limitation in the claim.

17. Claim 5 recites the limitation "said user interface" in the last line. There is insufficient antecedent basis for this limitation in the claim.

18. Claim 7 recites the limitation "the data" in lines 6 and 7. There is insufficient antecedent basis for this limitation in the claim.

19. Claim 10 recites the limitation "the data" in lines 7 and 8. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

20. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

21. Claims 1-3, 5, 7-8 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Mutalik et al. (US Patent Pub. No. 2003/0005120 A1).

22. With respect to claim 1, Mutalik et al. disclose:

A control method for a storage system which comprises a plurality of information processing units, shown in fig. 1, reference numeral 112, also shown in fig. 4, reference numeral 310, and fig. 5, reference numeral 310. The host computer systems are examples of information processing units;

a storage device provided with a plurality of logical volumes, shown in fig. 4, reference numeral 306, and further in detail in fig. 5, reference numerals 302, 360 and 362. See the related discussion in par. 69;

and a user interface, in par. 104;

said control method comprising:

performing a first process in which when a data write request to a first logical volume is sent from the information processing unit to the storage device the storage device stores the data in the first logical volume and stores the data in a second logical volume, shown in fig. 5 and described in par. 59 and par. 66;

performing a second process in which the storage device suspends the first process, shown in fig. 11, numeral 902, and described in par. 85;

and shifting from the second process to the first process to perform the first process; when shifting from the second process to the first process to perform the first process, inquiring an information processing unit which can access the second logical volume, of whether said information processing unit mounts the second logical volume or not; deciding whether said information processing unit mounts the second logical volume or not, shown in fig. 12, numerals 1002 and 1004, and described in par. 90;

when the information processing unit mounts the second logical volume, outputting that effect from said user interface, in fig. 12, numeral 1008 and par. 90. Also refer to par. 104, which discloses a graphical user interface, which would be a means of notification.

23. With respect to claim 2, Mutalik et al. disclose:

A control method for a storage system which comprises a plurality of information processing units, shown in fig. 1, reference numeral 112, also shown in fig. 4, reference

numeral 310, and fig. 5, reference numeral 310. The host computer systems are examples of information processing units;

a storage device provided with a plurality of logical volumes, shown in fig. 4, reference numeral 306, and further in detail in fig. 5, reference numerals 302, 360 and 362. See the related discussion in par. 69;

and a user interface, in par. 104;

said control method comprising:

performing a process in which when a data write request to a first logical volume is sent from the information processing unit to the storage device the storage device stores the data in the first logical volume and stores the data in a second logical volume, shown in fig. 5 and described in par. 59 and par. 66;

when the control is to be newly initiated between the first logical volume and the second logical volume, inquiring an information processing unit which can access the second logical volume, of whether said information processing unit mounts the second logical volume or not, deciding whether said information processing unit mounts the second logical volume or not, shown in fig. 12, numerals 1002 and 1004, and described in par. 90;

when the information processing unit mounts the second logical volume, outputting that effect from said user interface, in fig. 12, numeral 1008 and par. 90. Also refer to par. 104, which discloses a graphical user interface, which would be a means of notification.

24. With respect to claim 3, Mutalik et al. disclose:

A control method for a storage system which comprises a plurality of information processing units, shown in fig. 1, reference numeral 112, also shown in fig. 4, reference numeral 310, and fig. 5, reference numeral 310. The host computer systems are examples of information processing units;

a storage device provided with a plurality of logical volumes, shown in fig. 4, reference numeral 306, and further in detail in fig. 5, reference numerals 302, 360 and 362. See the related discussion in par. 69;

and a managing computer, shown in fig. 1, numeral 102;

said control method comprising:

performing a first process in which when a data write request to a first logical volume is sent from the information processing unit to the storage device the storage device stores the data in the first logical volume and stores the data in a second logical volume, shown in fig. 5 and described in par. 59 and par. 66;

performing a second process in which the storage device suspends the first process, shown in fig. 11, numeral 902, and described in par. 85;

shifting from the second process to the first process to perform the first process; when shifting from the second process to the first process to perform the first process, inquiring an information processing unit which can access the second logical volume, of whether said information processing unit mounts the second logical volume or not; deciding whether said information processing unit mounts the second logical volume or not, shown in fig. 12, numerals 1002 and 1004, and described in par. 90;

when the information processing unit mounts the second logical volume, outputting that effect from a user interface of the managing computer, in fig. 12, numeral 1008 and par. 90. Refer to fig. 1, numeral 108, the managing computer, which includes a graphical user interface browser 108a. Also refer to par. 46 for the related description.

25. With respect to claim 5, Mutalik et al. disclose:

A control method for a storage system which comprises a plurality of information processing units, shown in fig. 1, reference numeral 112, also shown in fig. 4, reference numeral 310, and fig. 5, reference numeral 310. The host computer systems are examples of information processing units;

a first storage device provided with a first logical volume in a first site, in fig. 5, numeral 362;

a second storage device provided with a second logical volume in a second site, in fig. 5, numeral 360;

said control method comprising:

performing a first process in which when a data write request to the first logical volume is sent from the information processing unit to the first storage device the first storage device stores the data in the first logical volume, the first storage device sends the data to the second storage device, and the second storage device which receives the data stores the data in the second logical volume, shown in fig. 5 and described in par. 59 and par. 66;

performing a second process in which the second storage device suspends the first process, shown in fig. 11, numeral 902, and described in par. 85;

the second storage device shifting from the second process to the first process to perform the first process; when shifting from the second process to the first process to perform the first process, inquiring an information processing unit which can access the second logical volume, of whether said information processing unit mounts the second logical volume or not; deciding whether said information processing unit mounts the second logical volume or not, shown in fig. 12, numerals 1002 and 1004, and described in par. 90;

when the information processing unit mounts the second logical volume, outputting that effect from said user interface, in fig. 12, numeral 1008 and par. 90. Also refer to par. 104, which discloses a graphical user interface, which would be a means of notification.

26. With respect to claim 7, Mutalik et al. disclose:

A storage system connectable to a plurality of information processing units, shown in fig. 1, reference numeral 112, also shown in fig. 4, reference numeral 310, and fig. 5, reference numeral 310. The host computer systems are examples of information processing units;

a storage device provided with a plurality of logical volumes, shown in fig. 4, reference numeral 306, and further in detail in fig. 5, reference numerals 302, 360 and 362. See the related discussion in par. 69;

and a user interface, in par. 104;

said storage system comprising:

means for performing a first process in which when a data write request to a first logical volume is sent from the information processing unit to the storage device the storage device stores the data in the first logical volume and stores the data in a second logical volume, shown in figures 4 and 5 and described in par. 59 and par. 66;

means for performing a second process in which the storage device suspends the first process, shown in figures 4 and 5, and the process shown in fig. 11, numeral 902, and described in par. 85;

means for shifting from the second process to the first process to perform the first process; means for inquiring an information processing unit which can access the second logical volume of whether said information processing unit mounts the second logical volume or not when shifting from the second process to the first process to perform the first process; means deciding whether said information processing unit mounts the second logical volume or not, shown in figures 4 and 5, where the process is described in fig. 12, numerals 1002 and 1004, and described in par. 90;

means for, when the information processing unit mounts the second logical volume, outputting that effect from said user interface, in fig. 12, numeral 1008 and par. 90. Also refer to par. 104, which discloses a graphical user interface, as the means of notification.

27. With respect to claim 8, Mutalik et al. disclose:

A managing computer connectable to a storage system which comprises a plurality of information processing units, in fig. 1, numeral 102 being the managing

computer, the numeral 112 being the information processing units, and the numeral 110 being the storage system;

and a storage device provided with a plurality of logical volumes, shown in fig. 4, reference numeral 306, and further in detail in fig. 5, reference numerals 302, 360 and 362. See the related discussion in par. 69;

said managing computer comprising:

means for shifting from the second process to the first process to perform the first process, in par. 46, where it is disclosed that the IR server can include a replication policy manager with an IR daemon for controlling replication activity for storage units;

means for inquiring an information processing unit which can access the second logical volume of whether said information processing unit mounts the second logical volume or not when shifting from the second process to the first process to perform the first process, in the LAN 106 of fig. 1 which connects the IR server 102 to the application hosts 112;

wherein said first process is that the storage device stores a data in the first logical volume and also stores the data in the second logical volume, wherein said second process that the storage device suspends the first process, in figures 4 and 5, and described in paragraphs 59 and 66; and

means for, when the information processing unit mounts the second logical volume, outputting that effect from said user interface, in paragraph 104 which discloses a graphical user interface.

28. With respect to claim 10, Mutalik et al. disclose:

A computer-readable storage medium having a program for a managing computer in a storage system comprising a plurality of information processing units, shown in fig. 1, numeral 102 being the managing computer, the numeral 112 being the information processing units, and the numeral 110 being the storage system. The user desktop machines 108 contain a computer readable medium which contains IR application 108c and browser 108a, which combined, control the managing computer 102. In addition, the managing computer 102 and information processing units 112 also contain computer readable storage mediums containing code, as evidenced by the IR daemon 102c and the application agent 112b, respectively. The programs stored on these computers perform the functions as described below;

a storage device provided with a plurality of logical volumes, shown in fig. 4, reference numeral 306, and further in detail in fig. 5, reference numerals 302, 360 and 362. See the related discussion in par. 69;

said program comprising:

code for performing a first process in which when a data write request to a first logical volume is sent from the information processing unit to the storage device the storage device stores the data in the first logical volume and also stores the data in a second logical volume, shown in fig. 5 and described in par. 59 and par. 66;

code for performing a second process in which the storage device suspends the first process, shown in fig. 11, numeral 902, and described in par. 85;

code for shifting from the second process to the first process to perform the first process, code for inquiring an information processing unit which can access the second logical volume of whether said information processing unit mounts the second logical volume or not when shifting from the second process to the first process to perform the first process, code for deciding whether the information processing unit mounts the second logical volume or not, shown in fig. 12, numerals 1002 and 1004, and described in par. 90;

and code for, when the information processing unit mounts the second logical volume, outputting that effect from a user interface of said managing computer, in fig. 12, numeral 1008 and par. 90. Also refer to par. 104 which discloses a graphical user interface, which would be a means of notification.

Conclusion

29. The prior art made of record on form PTO-892 and not relied upon is considered pertinent to applicant's discloser. Applicant is required under 37 C.F.R. § 1.111(c) to consider these references fully when responding to this action. The documents cited therein teach similar storage systems containing mirroring policies, user notifications and inquiries.

30. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan Dare whose telephone number is (571)272-4069. The examiner can normally be reached on Mon-Fri 9:30-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Kim can be reached on (571)272-4182. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RD
Ryan Dare
August 25, 2005

MATTHEW D. ANDERSON
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